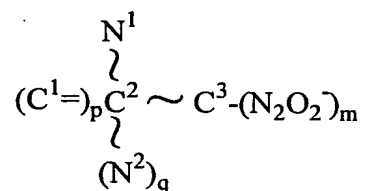


WHAT IS CLAIMED IS:

1. A compound having the chemical structural  
 5 linkage as follows:



wherein

$\text{C}^2 \sim \text{C}^3$  means either  $\text{C}^2 - \text{C}^3$  or  $\text{C}^2 = \text{C}^3$

10 m is 1 or 2

q is 0 or 1

p is 0 or 1

provided that

15 (1)  $\text{C}^2$  is tetravalent, and bound to two or more  
 of  $\text{C}^1$ ,  $\text{C}^3$ ,  $\text{N}^1$  and  $\text{N}^2$ ;

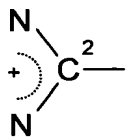
(2) when  $p=1$ , then  $q=0$  and  $\text{C}^2 \sim \text{C}^3$  means  $\text{C}^2 - \text{C}^3$ ; or

(3) when  $p=0$ , and  $q=1$ , then  $\text{C}^2 \sim \text{C}^3$  means either

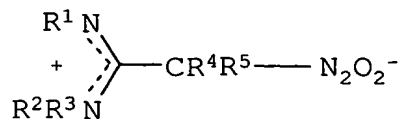
(i)  $\text{C}^2 = \text{C}^3$  or (ii)  $\text{C}^2 - \text{C}^3$  where  $\text{C}^2 \sim \text{N}^1$  means  $\text{C}^2 = \text{N}^1$ ;

(4) when  $\text{C}^2 \sim \text{C}^3$  means  $\text{C}^2 - \text{C}^3$  and  $q=1$  and  $p=0$ ;

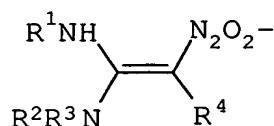
20 wherein  $\text{C}^2 \sim \text{N}^1$  and  $\text{C}^2 \sim \text{N}^2$  means



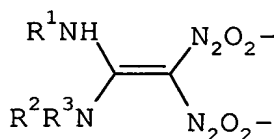
2. A compound selected from the group consisting  
 of:



FORMULA I,



FORMULA II, and



FORMULA III,

wherein

$\text{R}^1\text{-R}^3$  are independently hydrogen, an unsubstituted or substituted  $\text{C}_{1-12}$  straight chain alkyl, an  
 10 unsubstituted or substituted  $\text{C}_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $\text{C}_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $\text{C}_{3-12}$  branched chain olefinic, a substituted or unsubstituted  $\text{C}_{3-8}$  cycloalkyl, a  $\text{C}_{3-8}$  heterocyclic ring bound through a  
 15 carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or unsubstituted tetrahydronaphthyl, a substituted or unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three  
 20 substituents, or phenyl or substituted phenyl, substituted with up to three substituents;

$\text{R}^4$  and  $\text{R}^5$  are independently chosen from hydrogen, an unsubstituted or substituted  $\text{C}_{1-12}$  straight chain

alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain olefinic, a substituted  
 5 or unsubstituted benzyl, an unsubstituted or substituted phenyl, a substituted or unsubstituted piperazino, a substituted or unsubstituted morpholino, amino, an unsubstituted or substituted alkylamino, an unsubstituted or substituted arylamino, an unsubstituted  
 10 or substituted dialkylamino, an unsubstituted or substituted diarylamino, carboxyalkylamino, carboxydialkylamino, unsubstituted or substituted tolyl, xylyl, anisyl, mesityl, an unsubstituted or substituted acetyl, an unsubstituted or substituted acetoxyl,  
 15 carboxyl, an unsubstituted or substituted carboxymethyl, an unsubstituted or substituted carboxyethyl, an unsubstituted or substituted alkylcarbonyl, thiol, an unsubstituted or substituted alkylthio, an unsubstituted or substituted alkoxy, carboxamido, an unsubstituted or  
 20 substituted alkylcarboxamido, or an unsubstituted or substituted dialkylcarboxamido, an unsubstituted or substituted phenoxy, an unsubstituted or substituted benzyloxy, phenylcarbonyl, benzylcarbonyl, an unsubstituted or substituted nitrophenyl, trialkylsilyl  
 25 or nitro; and

$R^1$  and  $R^2$  together with the nitrogen atoms to which they are bonded form a substituted or unsubstituted  $C_{2-8}$  heterocyclic ring, or

R<sup>2</sup> and R<sup>3</sup> together with the nitrogen atom to which they are bonded form a substituted or unsubstituted C<sub>3-8</sub> heterocyclic ring, or

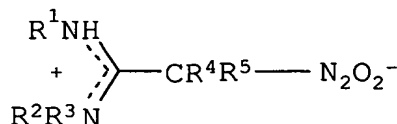
R<sup>1</sup> and R<sup>4</sup> together with the nitrogen atom to which R<sup>1</sup> is bonded and with the carbon atom to which R<sup>4</sup> is bonded and with the intervening carbon atom form a substituted or unsubstituted C<sub>2-6</sub> heterocyclic ring, or

R<sup>4</sup> and R<sup>5</sup> together with the carbon atom to which they are bonded form an unsubstituted or substituted C<sub>3-8</sub> cycloalkyl, or a C<sub>4-8</sub> heterocyclic ring in which the heteroatom is selected from the group consisting of oxygen, nitrogen, and sulfur, or

R<sup>4</sup> and R<sup>5</sup> together with the carbon atom to which they are bonded form an unsubstituted or substituted 1,4-benzodioxane, 1,3-benzodioxole, tetrahydronaphthlene, octahydronaphthalene, piperazine, morpholine, tetrahydroquinoline, tetrahydroquinoxaline, tetrahydroisoquinoline;

with the proviso that the heterocyclic ring formed by R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>1</sup> and R<sup>4</sup>, or R<sup>4</sup> and R<sup>5</sup> is not a five-membered heterocyclic ring in which the heteroatom is oxygen, nitrogen, or sulfur, or six-membered heterocyclic ring in which the heteroatom is nitrogen.

3. The compound of claim 2 of



FORMULA I,

wherein

$R^1$ - $R^3$  are independently hydrogen, an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, 5 an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain olefinic, a substituted or unsubstituted  $C_{3-8}$  cycloalkyl, a  $C_{3-8}$  heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or 10 nitrogen, a substituted or unsubstituted naphthyl, a substituted or unsubstituted tetrahydronaphthyl, a substituted or unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, 15 substituted with up to three substituents;

$R^4$  and  $R^5$  are independently chosen from hydrogen, an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  20 straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain olefinic, a substituted or unsubstituted benzyl, an unsubstituted or substituted phenyl, a substituted or unsubstituted piperazino, a substituted or unsubstituted morpholino, 25 amino, an unsubstituted or substituted alkylamino, an unsubstituted or substituted arylamino, an unsubstituted or substituted dialkylamino, an unsubstituted or substituted diarylamino, carboxyalkylamino, carboxydialkylamino, unsubstituted or substituted tolyl,

xylyl, anisyl, mesityl, an unsubstituted or substituted acetyl, an unsubstituted or substituted acetoxy, carboxy, an unsubstituted or substituted carboxymethyl, an unsubstituted or substituted carboxyethyl, an  
 5 unsubstituted or substituted alkylcarbonyl, thiol, an unsubstituted or substituted alkylthio, an unsubstituted or substituted alkoxy, carboxamido, an unsubstituted or substituted alkylcarboxamido, or an unsubstituted or substituted dialkylcarboxamido, an unsubstituted or  
 10 substituted phenoxy, an unsubstituted or substituted benzyloxy, phenylcarbonyl, benzylcarbonyl, an unsubstituted or substituted nitrophenyl, trialkylsilyl or nitro; and

$R^1$  and  $R^2$  together with the nitrogen atoms to which  
 15 they are bonded form a substituted or unsubstituted  $C_{2-8}$  heterocyclic ring, or

$R^2$  and  $R^3$  together with the nitrogen atom to which they are bonded form a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring, a substituted or unsubstituted  $C_{3-8}$   
 20 heterocyclic ring, or

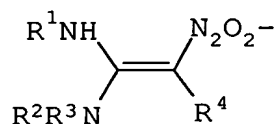
$R^1$  and  $R^4$  together with the nitrogen atom to which  $R^1$  is bonded and with the carbon atom to which  $R^4$  is bonded and with the intervening carbon atom form a substituted or unsubstituted  $C_{2-6}$  heterocyclic ring, or

25  $R^4$  and  $R^5$  together with the carbon atom to which they are bonded form an unsubstituted or substituted  $C_{3-8}$  cycloalkyl, or a  $C_{4-8}$  heterocyclic ring in which the heteroatom is selected from the group consisting of oxygen, nitrogen, and sulfur, or

R<sup>4</sup> and R<sup>5</sup> together with the carbon atom to which they are bonded form an unsubstituted or substituted 1,4-benzodioxane, 1,3-benzodioxole, tetrahydronaphthlene, octahydronaphthalene, piperazine, morpholine, tetrahydroquinoline, tetrahydroquinoxaline, tetrahydroisoquinoline;

with the proviso that the heterocyclic ring formed by R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>1</sup> and R<sup>4</sup>, or R<sup>4</sup> and R<sup>5</sup> is not a five-membered heterocyclic ring in which the heteroatom is oxygen, nitrogen, or sulfur, or six-membered heterocyclic ring in which the heteroatom is nitrogen.

4. The compound of claim 2 of



FORMULA II,

15

wherein

R<sup>1</sup>-R<sup>3</sup> are independently hydrogen, an unsubstituted or substituted C<sub>1-12</sub> straight chain alkyl, an unsubstituted or substituted C<sub>3-12</sub> branched chain alkyl, an unsubstituted or substituted C<sub>3-12</sub> straight chain olefinic, an unsubstituted or substituted C<sub>3-12</sub> branched chain olefinic, a substituted or unsubstituted C<sub>3-8</sub> cycloalkyl, a substituted or unsubstituted C<sub>3-8</sub> heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or unsubstituted tetrahydronaphthyl, a substituted or

25

unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, substituted with up to three substituents;

- 5         $R^4$  is hydrogen, an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain
- 10    olefinic, a substituted or unsubstituted benzyl, an unsubstituted or substituted phenyl, a substituted or unsubstituted piperazino, a substituted or unsubstituted morpholino, amino, an unsubstituted or substituted alkylamino, an unsubstituted or substituted
- 15    arylamino, an unsubstituted or substituted dialkylamino, an unsubstituted or substituted diarylamino, carboxyalkylamino, carboxydialkylamino, unsubstituted or substituted tolyl, xylyl, anisyl, mesityl, an unsubstituted or substituted acetyl, an unsubstituted or
- 20    substituted acetoxy, carboxy, an unsubstituted or substituted carboxymethyl, an unsubstituted or substituted carboxyethyl, an unsubstituted or substituted alkylcarbonyl, thiol, an unsubstituted or substituted alkylthio, an unsubstituted or substituted
- 25    alkoxy, carboxamido, an unsubstituted or substituted alkylcarboxamido, or an unsubstituted or substituted dialkylcarboxamido, an unsubstituted or substituted phenoxy, an unsubstituted or substituted benzyloxy,



phenylcarbonyl, benzylcarbonyl, an unsubstituted or substituted nitrophenyl, trialkylsilyl or nitro; and

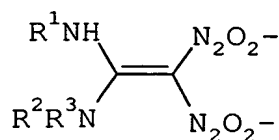
$R^1$  and  $R^2$  together with the nitrogen atoms to which they are bonded form a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring, or

$R^2$  and  $R^3$  together with the nitrogen atom to which they are bonded form a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring, or

$R^1$  and  $R^4$  together with the nitrogen atom to which  $R^1$  is bonded and with the carbon atom to which  $R^4$  is bonded and with the intervening carbon atom form a substituted or unsubstituted  $C_{2-6}$  heterocyclic ring;

with the proviso that the heterocyclic ring formed by  $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ , or  $R^1$  and  $R^4$  is not a five-membered heterocyclic ring in which the heteroatom is oxygen, nitrogen, or sulfur, or six-membered heterocyclic ring in which the heteroatom is nitrogen.

5. The compound of claim 2 of



FORMULA III,

wherein

$R^1$ - $R^3$  are independently hydrogen, an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain

olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain olefinic, a substituted or unsubstituted  $C_{3-8}$  cycloalkyl, a  $C_{3-8}$  heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or unsubstituted tetrahydronaphthyl, a substituted or unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, substituted with up to three substituents; and

$R^1$  and  $R^2$  together with the nitrogen atoms to which they are bonded form a substituted or unsubstituted  $C_{2-8}$  heterocyclic ring, or

$R^2$  and  $R^3$  together with the nitrogen atom to which they are bonded form a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring;

with the proviso that the heterocyclic ring formed by  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$  is not a five-membered heterocyclic ring in which the heteroatom is oxygen, nitrogen, or sulfur, or six-membered heterocyclic ring in which the heteroatom is nitrogen.

6. The compound of Formulae I, II or III of claim 2 wherein the substituents on the substituted groups are selected from the group consisting of alkoxy, acyloxy, hydroxy, halo, benzyl, acetyl, carboxyl, carboxyalkyl, carboxyalkylamido, carboxydialkylamido, alkylcarbonyl, arylamino, diarylamino, cyano, tolyl, xylyl, mesityl, anisyl, carboxamido, amino, alkylamino, dialkylamino,

formyl, dioxane, thiol, alkylthiol, aryl, heteroaryl, or phenoxy, benzyloxy, phenylcarbonyl, benzylcarbonyl, nitrophenyl, trialkylsilyl, nitro, sulfonyl, nitrobenzyl, trialkylammonium, alkyl, cycloalkyl,  
5 tetrahydrofuranyl, tetrahydropyranyl, piperidine and morpholine.

7. The compound of claim 3, wherein the substituents on the substituted groups are selected from  
10 the group consisting of alkoxy, acyloxy, hydroxy, halo, benzyl, acetyl, carboxyl, carboxyalkyl, carboxyalkylamido, carboxydialkylamido, alkylcarbonyl, arylamino, diarylamino, cyano, tolyl, xylyl, mesityl, anisyl, carboxamido, amino, alkylamino, dialkylamino,  
15 formyl, dioxane, thiol, alkylthiol, aryl, heteroaryl, or phenoxy, benzyloxy, phenylcarbonyl, benzylcarbonyl, nitrophenyl, trialkylsilyl, nitro, sulfonyl, nitrobenzyl, trialkylammonium, alkyl, cycloalkyl, tetrahydrofuranyl, tetrahydropyranyl, piperidine and  
20 morpholine.

8. The compound of claim 4, wherein the substituents on the substituted groups are selected from the group consisting of alkoxy, acyloxy, hydroxy, halo,  
25 benzyl, acetyl, carboxyl, carboxyalkyl, carboxyalkylamido, carboxydialkylamido, alkylcarbonyl, arylamino, diarylamino, cyano, tolyl, xylyl, mesityl, anisyl, carboxamido, amino, alkylamino, dialkylamino, formyl, dioxane, thiol, alkylthiol, aryl, heteroaryl, or

phenoxy, benzyloxy, phenylcarbonyl, benzylcarbonyl,  
nitrophenyl, trialkylsilyl, nitro, sulfonyl,  
nitrobenzyl, trialkylammonium, alkyl, cycloalkyl,  
tetrahydrofuranyl, tetrahydropyranyl, piperidine and  
5 morpholine.

9. The compound of claim 5, wherein the  
substituents on the substituted groups are selected from  
the group consisting of alkoxy, acyloxy, hydroxy, halo,  
10 benzyl, acetyl, carboxyl, carboxyalkyl,  
carboxyalkylamido, carboxydialkylamido, alkylcarbonyl,  
arylamino, diarylamino, cyano, tolyl, xylyl, mesityl,  
anisyl, carboxamido, amino, alkylamino, dialkylamino,  
formyl, dioxane, thiol, alkylthiol, aryl, heteroaryl, or  
15 phenoxy, benzyloxy, phenylcarbonyl, benzylcarbonyl,  
nitrophenyl, trialkylsilyl, nitro, sulfonyl,  
nitrobenzyl, trialkylammonium, alkyl, cycloalkyl,  
tetrahydrofuranyl, tetrahydropyranyl, piperidine and  
morpholine.

20

10. The compound of claim 2 of Formulae I, II or  
III, wherein the substituent on the substituted groups  
is a heteroaryl selected from the group consisting of  
pyrrole, furan, thiophene, thiazole, pyrazole, pyran,  
25 pyridine, and pyrimidine.

11. The compound of claim 7, wherein the  
substituent on the substituted groups is a heteroaryl  
selected from the group consisting of pyrrole, furan,

thiophene, thiazole, pyrazole, pyran, pyridine, and pyrimidine.

12. The compound of claim 8, wherein the  
5 substituent on the substituted groups is a heteroaryl selected from the group consisting of pyrrole, furan, thiophene, thiazole, pyrazole, pyran, pyridine, and pyrimidine.

10 13. The compound of claim 9, wherein the substituent on the substituted groups is a heteroaryl selected from the group consisting of pyrrole, furan, thiophene, thiazole, pyrazole, pyran, pyridine, and pyrimidine.

15 14. The compound of claim 2 of Formulae I, II or III, wherein the substituents on the substituted groups are selected from the group consisting of benzyl, tolyl, carboxyl, carboxyalkyl, dialkylamino, arylamino, and  
20 diarylamino.

15 15. The compound of claim 3, wherein the substituents on the substituted groups are selected from the group consisting of benzyl, tolyl, carboxyl, carboxyalkyl, dialkylamino, arylamino, and diarylamino.

16. The compound of claim 4, wherein the substituents on the substituted groups are selected from

the group consisting of benzyl, tolyl, carboxyl, carboxyalkyl, dialkylamino, arylamino, and diarylamino.

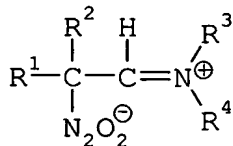
17. The compound of claim 5, wherein the substituents on the substituted groups are selected from the group consisting of benzyl, tolyl, carboxyl, carboxyalkyl, dialkylamino, arylamino, and diarylamino.

18. The compound of claim 5, wherein  $R^1$  and  $R^2$  are hydrogen and  $R^3$  is the entire substituent attached to an amine of a compound selected from the group consisting of an amino acid, tryptamine, serotonin, histamine, valcyclovir, adenosine, thyroxine, guanine, guanosine, ubenimex, glucosamine, mannosamine, mycosamine, sphingosine, thienamycin, penicillamine and rimantadine.

19. The compound of claim 18, wherein the amino acid is selected from the group consisting of lysine, tryptophan and hydroxy-tryptophan.

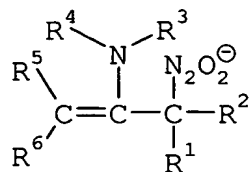
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20. A compound selected from the group consisting of



FORMULA IV and

25



FORMULA V

wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>5</sup> and R<sup>6</sup> are independently hydrogen, an  
 5 unsubstituted or substituted C<sub>1-12</sub> straight chain alkyl,  
 an unsubstituted or substituted C<sub>3-12</sub> branched chain  
 alkyl, an unsubstituted or substituted C<sub>3-12</sub> straight  
 chain olefinic, an unsubstituted or substituted C<sub>3-12</sub>  
 branched chain olefinic, a substituted or unsubstituted  
 10 benzyl, a substituted or unsubstituted phenyl, a  
 substituted or unsubstituted piperazino, a substituted  
 or unsubstituted morpholino, amino, an unsubstituted or  
 substituted alkylamino, an unsubstituted or substituted  
 arylamino, an unsubstituted or substituted dialkylamino,  
 15 an unsubstituted or substituted diarylamino,  
 carboxyalkylamino, carboxydialkylamino, cyano, a  
 substituted or unsubstituted tolyl, xylyl, anisyl,  
 mesityl, an unsubstituted or substituted acetyl, an  
 unsubstituted or substituted acetoxyl, carboxyl, an  
 20 unsubstituted or substituted carboxymethyl, an  
 unsubstituted or substituted carboxyethyl, an  
 unsubstituted or substituted alkylcarbonyl, thiol, an  
 unsubstituted or substituted alkylthio, an unsubstituted  
 or substituted alkoxy, carboxamido, an unsubstituted or  
 25 substituted alkylcarboxamido, or an unsubstituted or  
 substituted dialkylcarboxamido, a substituted or

unsubstituted phenoxy, a substituted or unsubstituted benzyloxy, phenylcarbonyl, benzylcarbonyl, a substituted or unsubstituted nitrophenyl, trialkylsilyl or nitro,

5  $R^1$  and  $R^2$  together with the carbon to which they are bonded can form a substituted or unsubstituted  $C^4-C^8$  cycloalkyl,

$R^2$  and  $R^3$  together with the nitrogen atom to which they are bonded form a substituted or unsubstituted  $C_{3-8}$  cycloalkyl,

10  $R^3$  and  $R^4$  are an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain  
 15 olefinic, a substituted or unsubstituted  $C_{3-8}$  cycloalkyl, a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or  
 20 unsubstituted tetrahydronaphthyl, a substituted or unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, substituted with up to three substituents, or

25  $R^3$  and  $R^4$  together with the nitrogen atom to which they are bonded can form a  $C_{3-8}$  heterocyclic ring or a  $C_{3-8}$  substituted heterocyclic ring or a  $C_{3-8}$  unsubstituted or substituted heterocyclic ring

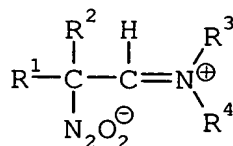


containing up to two additional heteroatoms selected from the group O, S, N, or

R<sup>1</sup> and R<sup>6</sup> together with the C=C-C through which they are bonded form an unsubstituted or substituted  
5 cycloalkyl, or

R<sup>5</sup> and R<sup>6</sup> together with the carbon to which they are bonded can form a substituted or unsubstituted C<sub>4-8</sub> cycloalkyl.

10 21. A compound of



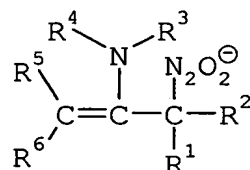
FORMULA IV

wherein R<sup>1</sup> and R<sup>2</sup> are independently hydrogen, an  
15 unsubstituted or substituted C<sub>1-12</sub> straight chain alkyl, an unsubstituted or substituted C<sub>3-12</sub> branched chain alkyl, an unsubstituted or substituted C<sub>3-12</sub> straight chain olefinic, an unsubstituted or substituted C<sub>3-12</sub> branched chain olefinic, a substituted or unsubstituted  
20 benzyl, a substituted or unsubstituted phenyl, a substituted or unsubstituted piperazino, a substituted or unsubstituted morpholino, amino, an unsubstituted or substituted alkylamino, an unsubstituted or substituted arylamino, an unsubstituted or substituted dialkylamino,  
25 an unsubstituted or substituted diarylamino, carboxyalkylamino, carboxydialkylamino, cyano, a

substituted or unsubstituted tolyl, xylyl, anisyl, mesityl, an unsubstituted or substituted acetyl, an unsubstituted or substituted acetoxy, carboxy, an unsubstituted or substituted carboxymethyl, an  
 5 unsubstituted or substituted carboxyethyl, an unsubstituted or substituted alkylcarbonyl, thiol, an unsubstituted or substituted alkylthio, an unsubstituted or substituted alkoxy, carboxamido, an unsubstituted or substituted alkylcarboxamido, or an unsubstituted or  
 10 substituted dialkylcarboxamido, a substituted or unsubstituted phenoxy, a substituted or unsubstituted benzyloxy, phenylcarbonyl, benzylcarbonyl, a substituted or unsubstituted nitrophenyl, trialkylsilyl or nitro,

$R^3$  and  $R^4$  are an unsubstituted or substituted  $C_{1-12}$   
 15 straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain olefinic, a substituted or unsubstituted  $C_{3-8}$   
 20 cycloalkyl, a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or unsubstituted tetrahydronaphthyl, a substituted or  
 25 unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, substituted with up to three substituents.

22. A compound of



FORMULA V

- 5 wherein R<sup>5</sup> and R<sup>6</sup> are independently hydrogen, an  
 unsubstituted or substituted C<sub>1-12</sub> straight chain alkyl,  
 an unsubstituted or substituted C<sub>3-12</sub> branched chain  
 alkyl, an unsubstituted or substituted C<sub>3-12</sub> straight  
 chain olefinic, an unsubstituted or substituted C<sub>3-12</sub>  
 10 branched chain olefinic, a substituted or unsubstituted  
 benzyl, a substituted or unsubstituted phenyl, a  
 substituted or unsubstituted piperazino, a substituted  
 or unsubstituted morpholino, amino, an unsubstituted or  
 substituted alkylamino, an unsubstituted or substituted  
 15 arylamino, an unsubstituted or substituted dialkylamino,  
 an unsubstituted or substituted diarylamino,  
 carboxyalkylamino, carboxydialkylamino, cyano, a  
 substituted or unsubstituted tolyl, xylyl, anisyl,  
 mesityl, an unsubstituted or substituted acetyl, an  
 20 unsubstituted or substituted acetoxy, carboxy, an  
 unsubstituted or substituted carboxymethyl, an  
 unsubstituted or substituted carboxyethyl, an  
 unsubstituted or substituted alkylcarbonyl, thiol, an  
 unsubstituted or substituted alkylthio, an unsubstituted  
 25 or substituted alkoxy, carboxamido, an unsubstituted or  
 substituted alkylcarboxamido, or an unsubstituted or

substituted dialkylcarboxamido, a substituted or unsubstituted phenoxy, a substituted or unsubstituted benzyloxy, phenylcarbonyl, benzylcarbonyl, a substituted or unsubstituted nitrophenyl, trialkylsilyl or nitro,

5         $R^3$  and  $R^4$  are an unsubstituted or substituted  $C_{1-12}$  straight chain alkyl, an unsubstituted or substituted  $C_{3-12}$  branched chain alkyl, an unsubstituted or substituted  $C_{3-12}$  straight chain olefinic, an unsubstituted or substituted  $C_{3-12}$  branched chain  
 10    olefinic, a substituted or unsubstituted  $C_{3-8}$  cycloalkyl, a substituted or unsubstituted  $C_{3-8}$  heterocyclic ring bound through a carbon atom and in which the heteroatom is oxygen or nitrogen, a substituted or unsubstituted naphthyl, a substituted or  
 15    unsubstituted tetrahydronaphthyl, a substituted or unsubstituted octahydronaphthyl, benzyl or substituted benzyl, substituted with up to three substituents, or phenyl or substituted phenyl, substituted with up to three substituents.

20

23. The compound of claim 22, wherein  $R^2$  and  $R^3$ , together with the carbon and nitrogen atom to which they are bonded, form a  $C_{3-8}$  cycloalkyl.

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24. The compound of claim 23, wherein the  $C_{3-8}$  cycloalkyl is substituted with a heteroatom.

25. The compound of claim 22, wherein  $R^5$  and  $R^6$ , together with the C=C-C through which they are bonded, form a  $C_{3-12}$  alicyclic hydrocarbon.

5        26. The compound of claim 21, wherein  $R^3$  and  $R^4$ , together with the nitrogen to which they are bonded, form a  $C_{3-8}$  cycloalkyl.

10        27. The compound of claim 26, wherein the  $C_{3-8}$  cycloalkyl is further substituted with an unsubstituted or substituted heteroatom or an aromatic ring, optionally substituted with a  $C_{1-6}$  alkyl or a  $C_{1-6}$  alkoxy, and  $R^1$  and  $R^2$  optionally together form a  $C_{3-8}$  cycloalkyl.

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28. A method of treating an animal having a biological disorder treatable with nitric oxide, which method comprises administering to the animal a compound of claim 1 in an amount sufficient to treat the  
20 biological disorder in the animal.

29. A method of preventing a biological disorder in a mammal susceptible to prevention with nitric oxide, which method comprises administering to the  
25 mammal a compound of claim 1 in an amount sufficient to prevent the biological disorder in the mammal.